

### REMARKS

The Examiner is thanked for the Official Action of July 8<sup>th</sup>, 2003. This request for reconsideration is intended to be fully responsive thereto.

#### INFORMATION DISCLOSURE STATEMENT

As of yet the Applicant has not prepared and has not filed an Information Disclosure Statement, as suggested by Examiner.

#### REJECTION UNDER 35 U.S.C. 102 (Admitted Prior Art)

##### Examiner's Rejection

Claims 1 and 3-5 were rejected under 35 U.S.C. 102(b) as being anticipated by the admitted prior art (APA) in the present application. Examiner suggested that APA discloses subject limitation of Claim 1 because Claim 1 does not define the temperature or rate of the warm breeze. APA uses hot air at 80-200 centigrade and speed with a low end of 15 m/sec. While the specification states the breeze is preferably in a range from 0.1-3 m/sec, the term breeze is not exclusive to that range and can in fact be values above 3/sec and still be a breeze.

##### Amendment in Response to Examiner's Rejection and Amended Claim 1

Claim 1 was amended to recite "directing warm breeze of 60-150°C and 0.1-3.0m/sec onto the coated compound mixture to gradually vaporize the solvent." As Examiner explained in the outstanding office action, this amendment is supported in the specification (last 2 lines of page 5). Warm breeze 51 of the present invention is preferably in the range of 60-150°C and between 0.1-3.0m/second or lower. After drying the compound mixture (mixed material) 31 with the warm breeze 51, the resultant electrode layer 18 adheres to the current collector 13 and has a lower electrical resistance.

##### Admitted Prior Art

FIG. 4 illustrates an enhanced view of the compound mixture 18 coated on the current collector 13. **FIG. 4(A) (conventional method)** shows the result of directing hot air flow f of 80-200°C at 15-25m/sec.

According to the conventional method of FIG. 4(A), the hot air flow f quickly warms the surface of the compound mixture 31 and quickly vaporizes the solvent

around the surface. In order to compensate for the vaporized solvent from the surface area, the solvent at the internal portion of the compound mixture and near the current collector 13 quickly migrates to the vicinity of the surface area. Simultaneously, the binder and powdered conductive material contained in the solvent quickly migrates to the vicinity of the surface area. As a result, density/concentration of the binder and the powdered conductive material at the current collector side is lower. Accordingly, the resultant electrode layer tends to easily be broken and peeled off; resistivity in the vicinity of the current collector 13 becomes high, and overall resistance of the electrode layer increases.

#### Present Invention

**FIG. 4(B) (present method)** shows the result of directing warm breeze of 60-150°C at 0.1-3m/sec.

According to the present method of FIG. 4(B), the warm breeze 51 gradually warms the compound mixture 31 in its entirety and gradually vaporizes the solvent from the surface of the compound mixture 31. Thus, no quick migration of the compound mixture, binder, and the powdered conductive material 14 occurs, and therefore the density/concentration therein remains uniform overall. Because of this, the resultant electrode layer adheres better to the current-collecting member and is more durable than the APA; resistivity in the vicinity of the current collector 13 becomes lower, and overall resistance of the electrode layer decreases.

#### Reasons for Overcoming Examiner's Rejection

By these amendments, it is clear that structural differences exist between APA and the present invention. As already discussed above, APA uses hot air at 80-200 centigrade and a wind speed with a low end of 15 m/sec. while the present invention blows a warm breeze between 60-150°C onto the coated compound mixture to gradually vaporize the solvent at 0.1-3.0m/sec. Results clearly show sufficient justification for the present invention to overcome the APA rejection. That is, the resultant electrode of the present invention is much stronger and has lower resistivity. Therefore, these clear and significant differences should be sufficient to overcome Examiner's rejection under 35 U.S.C. 102.

#### REJECTION UNDER 35 U.S.C. 102 (U.S. Patent No. 5,462,820 to Tanaka)

##### Rejections under 35 U.S.C. 103(a) Regarding Claims 1, 2 and 4-9

Claims 1-6 were rejected under 35 U.S.C. 102(b) as being unpatentable over U.S. Patent 5,462,820 to Tanaka. Examiner's reasoning for the rejection is as

follows.

"Tanaka teaches...directing warm breeze onto the compound mixture to gradually vaporize the solvent and form an electrode film on the current collecting member. Claim 1 does not define the temperature or rate of the warm breeze. The prior art teaches of using air at 20-350°C and preferably 40°C to 200°C. The speed of the air ranges from 0.1 to 100m/sec. and preferably 1 to 30m/sec. (col. 5, ll. 1-10). While the specification states that the breeze is preferably in a range from 0.1-3m/sec. (last to two lines of page 5) the term breeze is not exclusive to that range and can in fact be values above 3m/sec. and still be a breeze...[A]n additional teaching of drying via low-moisture air...will inherently provide a dry air heat."

#### Tanaka's Limitation

The limitation of Tanaka is extremely broad in that the air temperature is in the range from 20-350°C and 0.1-100m/sec. The object of Tanaka is different from the object of the present invention, and at the time of the invention Tanaka did not consider the limitation of the present invention. Tanaka provides a non-aqueous battery whose storage stability is improved when it is not in use and which is not deteriorated even when it is in use. That is clearly different from the present invention.

In addition, this reasoning can be supported by finding the fact that the APA (hot air at 80-200 centigrade and speed with a low end of 15 m/sec) is within Tanaka (20-350°C and 0.1-100m/sec). Because including the limitation of the APA leaves the same problem of the APA as described above, it is clear that Tanaka ignores the object of the present invention.

#### Reasons for Overcoming Examiner's Rejection

By these amendments, Claim 1 was amended to recite "directing warm breeze of 60-150 °C and 0.1-3.0m/sec onto the coated compound mixture to gradually vaporize the solvent." Major objects of the present invention are to provide an electrode with excellent bonding to the current-collecting member and lower resistivity. The limitations and the differences in the objects should be sufficient to overcome Examiner's rejection under 35 U.S.C. 102(b).

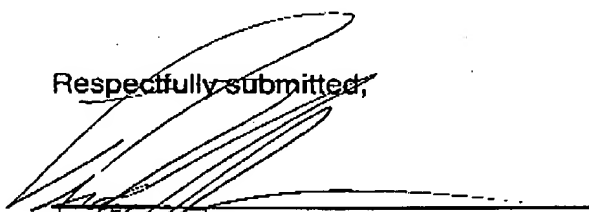
**CONCLUSION**

APA fails to provide the technology of directing a warm breeze of 60-150°C and 0.1-3.0m/sec onto the coated compound mixture to gradually vaporize the solvent. Furthermore, Tanaka does not disclose the limitation and the invention shows a different object. Because both prior arts fail to disclose or suggest the limitation of Claim 1, the further limitations in Claim 3-6 should be allowable for the same reasoning as described above.

Accordingly, it is respectfully submitted that claims 1, 3-6 define the invention over the prior arts and notice to this effect is respectfully solicited. Applicant believes that the claims are now in condition for allowance. No new matter has been added.

Should Examiner believes further discussion regarding the above claimed language would expedite prosecution they are invited to contact the undersigned at the number listed below.

Respectfully submitted,



Tracy M Heims  
Reg.# 53,010

Apex Juris, pllc  
13194 Edgewater Lane Northeast  
Seattle, Washington 98125  
Email: [tracy@apexjuris.com](mailto:tracy@apexjuris.com)  
Tel: 206-664-0314  
Fax: 206-664-0329